



Olearia astroloba Marble Daisy-bush

Taxonomy

Olearia astroloba Lander & N.G. Walsh

Current conservation status

Listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*.

Listed as threatened under the *Flora and Fauna Guarantee Act 1988* (SAC 1991).

Categorised as Vulnerable in the 2014 Advisory list of rare or threatened flora (DEPI 2014).

Proposed conservation status

Critically Endangered in Australia

Criteria B1ab(iii)+2ab(iii)

Species Information

Description and Life History

The taxon is a greyish shrub to c. 0.5 m high; branchlets finely stellate-tomentose. Leaves alternate, sessile or subsessile, spathulate, 5-18 mm long, 3-10 mm wide, grey-green above with mid-dense stellate hairs, grey-white and densely stellate-tomentose below; margin thickened or recurved, dentate to shallowly lobed in the distal half. Capitula 15-35 mm diam., sessile, terminal; involucre c. hemispherical, 5.5-7.5 mm long; bracts 3-5-seriate, graduating, stellate-tomentose. Ray florets 12-24, mauve or violet, ligules 7-14 mm long; disc florets 12-45, purple, often with 1-few stellate hairs near the tip of each lobe. Cypsela narrow-obovoid, 2-2.5 mm long, 6-ribbed, densely sericeous, dark purplish; pappus bristles pale, 4-5 mm long. Flowers mainly May-September (VicFlora 2018).

Generation Length

The generation length of *Olearia astroloba* is estimated to be 30 to 50 years. This is based on the taxon's lifeform of a resprouting shrub.

Distribution

The taxon is endemic to Victoria, with the only known population occurring at Marble Gully Nature Conservation Reserve, near Bindi in the Tambo valley north-east of Swifts Creek, East Gippsland.

Habitat

The taxon occurs from Silurian limestone and marble deposits, at about 600 m above sea level on a steep northerly aspect. It grows in *Pomaderris oraria* subsp. *calcicola* shrubland, with occasional emergent *Allocasuarina verticillata* and *Eucalyptus nortonii*, and a *Themeda triandra* and *Ozothamnus adnatus* understorey. The mean annual rainfall is about 650 mm/year (Carter & Walsh 2006).

Threats

The taxon's habitat is threatened by weed invasion, potential erosion which is enhanced by past clearing and grazing animals, and grazing by domestic livestock and deer. Plants are adapted to drought, but potential extreme dry weather conditions may be a threat. Marble Gully was burnt in 2003, and although the population appeared to

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recover, further fires within a short period could adversely affect the taxon especially if the soil seed store has not been adequately replenished.

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>			
<p>based on any of the following:</p> <ul style="list-style-type: none"> (a) direct observation [except A3] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites 			

Evidence:

Eligible under Criterion A2 as Endangered

The population reduction over the past 90 to 150 years is suspected to be 25 to 50%, based on (c) and (e) above.

The bushfires of 2019/2020 are believed to have impacted more than 80% of the taxon's habitat. The taxon is sensitive to fire, it appears to have recovered from the 2003 fires. It is likely to have been impacted, although the degree of damage is yet to be determined.

Eligible under Criterion A3 as Endangered

The population reduction over the next 90 to 100 years is projected to be 30 to 50%, based on (c) and (e) above.

It is likely that numbers will decline as a result of grazing (particularly by deer), coupled with increasingly dry weather, but in particular, the risk of frequent fires may lead to exhaustion of the seed bank.

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Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Eligible under Criterion B1 as Critically Endangered

The Extent of Occurrence (EoO) across the taxon's range is estimated to be 4 km², based on accepted, post-1970 records from the Victorian Biodiversity Atlas (VBA).

The taxon is estimated to have one location as all key identified threats apply across its range and can rapidly affect all individuals of the taxon present. Repeat fires have the potential to significantly impact all individuals.

It has a continuing decline in (iii) above, based on the impacts of the identified threats.

Eligible under Criterion B2 as Critically Endangered

The Area of Occupancy (AoO) across the taxon's range is estimated to be 4 km², based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA.

As above, the taxon has one location, and has a continuing decline in (iii) above.

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Criterion C. Small Population size and decline		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of C1 or C2				
C1	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
C2	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b)	Extreme fluctuations in the number of mature individuals			

Evidence:

Ineligible under Criterion C

It is estimated that there are 1,000 mature individuals, but other thresholds under this criterion have not been met.

Criterion D. Very small or restricted populations		Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)		< 50	< 250	< 1,000
D2. Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.		-	-	D2. Typically: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Eligible under criterion D as Vulnerable

It is estimated that there are 1,000 mature individuals, and the taxon is estimated to be very restricted.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

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